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## Phonological Processes of English Loanwords From French: A Transformational Generative Phonology Approach

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### Abstract

**[Title: Phonological Processes of English Loanwords From French: A Transformational Generative Phonology Approach]** English lexicon has borrowed from 84 languages with French as the most important donor (Bielien-Grajewska, 2009). English borrowed a great number of lexicon from French in Norman Conquest period. French which had status as high language in a diglosia situation influenced English in superstate borrowing. The main reason for borrowing is to provide words from the source language variety when there is no suitable existing words in the target language (Rao, 2018). This paper aims at describing the phonological process in the English loanwords from French. The data were collected from two online dictionaries; Larousse Francais-Anglais Dictionary and Oxford Living Dictionary. The data are English loanwords from French enlisted under categories A and B in the dictionaries. The method used to analyze the data was distributional method. The results show that Assimilation occurs in 29 loanwords or 6.6% of the total process which makes Assimilation process the least in number of the total process. Neutralization covers 7.8% with 34 loanwords. Syllable Structure is undergone by 63 loanwords or 14.3% of the total process. Strengthening occurs in 117 loanwords or 26.7% of the total process. Weakening covers 43.6% of the total process with 191 loanwords. Therefore, Weakening is the phonological process most found in the study.

**Keywords:** English; French; Loanwords; Phonological Processes; Rules

### Abstrak

Leksikon bahasa Inggris telah meminjam dari 84 bahasa dengan bahasa Perancis sebagai pendonor terpenting (Bielien-Grajewska, 2009). Bahasa Inggris meminjam leksikon bahasa Perancis dalam jumlah besar ketika periode Penaklukan Norman berlangsung di Inggris. Dalam situasi diglosia saat itu, bahasa Perancis memiliki status bahasa tinggi yang mempengaruhi bahasa Inggris dalam bentuk peminjaman superstate. Alasan utama peminjaman kata adalah menyediakan kata dari varitas bahasa sumber ketika tidak ada kata yang tepat untuk digunakan dalam bahasa target (Rao, 2018). Makalah ini bertujuan untuk mendeskripsikan proses fonologis yang terjadi pada kata serapan bahasa Inggris dari bahasa Perancis. Data diperoleh dari dua kamus online yakni Kamus Perancis-Inggris Larousse dan Kamus Hidup Oxford. Data tersebut merupakan kata serapan bahasa Inggris dari bahasa Perancis yang terdaftar dalam kategori A dan B dalam kamus tersebut. Metode yang digunakan dalam menganalisis data adalah metode agih. Hasil menunjukkan bahwa proses asimilasi terjadi pada 29 kata serapan atau 6.6% dari keseluruhan proses. Hal ini membuat proses asimilasi menjadi proses dengan jumlah paling sedikit. 7.8% proses fonologis yang terjadi merupakan proses netralisasi. Proses ini terjadi pada 34 kata serapan. Structure silabel terjadi pada 63 kata serapan dengan presentase 14.3%. Proses penguatan terjadi pada 117 kata serapan dengan presentase 26.7%. Pelemahan terjadi pada 191 kata serapan atau 43.6% dari total proses. Sehingga pelemahan merupakan proses fonologis yang paling banyak ditemukan dalam kajian ini.

**Kata Kunci:** Bahasa Inggris; Bahasa Perancis; Kaidah; Kata Serapan; Proses Fonologis

### 1. Introduction

Limited to economic discourse, Bielenia-Grajewska (2009) states that English's lexicon has borrowed from 84 languages, with French (25%) as the most important donor. English borrowed a great number of French lexicon in the 11th – 12th centuries (Hardini & Grange, 2016) or known as the Norman Conquest period. In the period, the arrival of a new Anglo-Norman ruling class in England inevitably transferred their everyday language to their official offices which resulted in Anglo-French became

established alongside Latin language as the language of public state business and of the court (Singh, 2005). At that time, French and English had different status. French was considered higher and English was lower. The status of the two languages were unequal which resulted in superstate borrowing: French influenced English from above (Fischer: 2003). This brought about the emergence of English loanwords from French.

When a language takes words from other languages, the new words are called borrowings or loanwords (Darwish, 2015). Loanwords are not pronounced the same way as the words in the original language form. They undergo adaptation. The adaptation is to fit the different phonological system of the languages involved (Darwish, 2015). Phonological adaptation means there is a change in sound. The change in sound can be in forms of consonant insertion, vowel insertion, consonant coalescence, assimilation, neutralization, consonant deletion, vowel deletion, vowel reduction, diphthongization, etc.

The main reason for loaning according to Darwish (2015) is the need to acquire new vocabulary or lexical items for new places, things, and concepts. According to Ngom (2002), speakers sometimes borrow words that are not available in their own language, so that they can express an idea or concept. This is in line with Rao (2018) who states that the main reason for borrowing is to provide a word from the source language variety when there is no suitable existing word in the target language.

## **2. Literature Reviews**

There are many researches about English loanwords and phonological process, some of which were conducted by Bielenia-Grajewska (2009), Darwish (2015), Sa'aida (2015), Li-na (2016), Rao (2018), Muslihah (2018), Arief (2019), and Satyanto & Nirmala (2020). Limiting the scope of the study into economic discourse, Bielenia-Grajewska (2009) conducted a study about the function of loanwords in English language of Economics. She discussed languages which have influenced English economic vocabulary, and domains which rely heavily on loanwords. In 2015, Darwish studied English loanwords from Arabic language. He discussed about conflicting views regarding the term loanwords, the amount of Arabic loanwords in English, and a historical preview from the first Arabic words in Old English until the latest words in the last decades by considering the factors involved in borrowing from Arabic to English. Sa'aida (2015) studied the influence from English to Arabic. She conducted a study about aspects of the phonology of English loanwords in Jordanian Urban Arabic. She used three theories, namely Distinctive Feature (2005) by Oden, Moraic Theory (1989) by Hayes, and Metrical Stress Theory (1995). Li-na (2016) studied loanwords in modern English from 8 languages, summarized kinds of loanwords, and their features to help facilitate English learning in an effective way. Rao (2018) conducted a study about the significance of the words borrowed into English language. According to him, English as the language of primary source for the development of the society and the progress of science and technology, politics, culture, education, and economics still continues to expand its vocabulary by means of loanwords from other languages.

Muslihah (2018) studied process of loaning from English into Japanese. She found that there are 9 rules in the process of loaning from English to Japanese. Arief (2019) conducted a research about phonological processes in passive verb markers in Bahasa Bakumpai. The result show that the prefix which

becomes the passive marker is –i and when it is attached to stems beginning with consonants, there are insertions of certain consonants. Satyanto and Nirmala (2020) studied phonological process of counting unit in Japanese. The result shows that the addition of [+ voiced] to the counting unit marker which causes [ç] / [h] → [b] and [s] → [z] if the marker does not start with a consonant sound [d], [k], [m], [s] followed by a vowel sound [a], or [h] / [ç] which is followed by a vowel [o]. No changes are found from [+ voiced] to [-voiced]. Without restricting to a certain discourse, the writers conduct this study on the phonological process of English loanwords from French, considering French as the most influential donor (Bielenia-Grajewska, 2009). Thus, the writers consider this study worth to be conducted.

The concept of phonological process in this study refers to Schane (1973). He states that in words formation by combining morphemes, the segments of neighboring morphemes become juxtaposed and sometimes undergo change. Such change is called phonological process. Phonological process is categorized into four, namely (1) Assimilation, (2) Syllable Structure, (3) Weakening and Strengthening, and (4) Neutralization. Assimilation is where segments become more alike. In assimilatory processes, a segment takes on features from a neighboring segment. Syllable Structure is where there is alteration in the distribution of consonants and vowels. Weakening and Strengthening are where segments are modified according to their position in the word, and Neutralization is where segments merge in a particular environment.

Transformational Generative Phonology is a phonological theory developed from Transformational Generative Grammar by Chomsky in 1957 and 1965. Transformational Generative Phonology looks at phoneme as distinctive features (Schane, 1973). This view is supported by Oden (2005) who saw the need to have a tool to describe every feature in the phonological system.

The theory of distinctive features applied in this paper refers to Schane (1973). In this theory, there is a small set of universal properties, whose properties are phonetically based and used in phonological analysis (Sa'aida, 2015). Sa'aida (2015) adds that this theory works by having each feature assigned one of two values, plus or minus, to a segment based on phonetic properties. According to Schane (1973), distinctive features are classified into six. They are (1) Major Class Features, (2) Manner Features, (3) Place of Articulation Features, (4) Body of Tongue Features, (5) Subsidiary Features, and (6) Prosodic Features.

First, in Major Class Features, we recognize [syllabic], [sonorant], and [consonantal]. The feature [syllabic] characterizes the role a segment plays in the structure of the syllable. The feature [sonorant] refers to the resonant quality of a sound. The feature [consonantal] refers to a narrowed constriction in the oral cavity – either total occlusion or frication. Second, in Manner Features, we recognize [continuant], [delayed release], [strident], [nasal] and [lateral]. The features [consonantal], [continuant], [delayed release], and [strident] define different types of obstruent. The feature [nasal] and [lateral] differentiate various sonorant consonants. Third, in Place of Articulation Features, we recognize [anterior] and [coronal]. According to Chomsky and Halle, there are four principal places for consonant articulation, namely labial, dental, palato-alveolar, velar. The four principal places are according to whether the constriction is at the extreme forward of region of the oral cavity (the anterior consonants) or more retracted (the nonanterior), and whether the

articulator is the blade of the tongue (the coronals) or some other articulator (the noncoronals). Fourth, in Body of Tongue Features, we deal with [high], [low], [back], and lip shape feature: [round]. In vowels classification, we use the parameters high, mid, low, front, back, rounded, and unrounded. The parameters related to backness and rounding are binary. However, to differentiate three degrees, such as high, mid, and low, we need to use two features conjointly, specifying values for both. Fifth, in Subsidiary Features, we recognize features such as [tense], [voiced], [aspirated], and [glottalized]. The feature [tense] occurs with both vowels and consonants. It can also be used for the nonlateral liquids. The feature [voiced] occurs with all types of segments, although it is rarer for sonorants to have voicing differences. Features [aspirated] and [glottalized] are uniquely used with consonants, and most of the time only with obstruents. Sixth, for Prosodic Features, we need to recognize [stress] and [long]. Stressed vowels will be marked [+stress] and long segments will be marked [+long].

This paper aims at describing the phonological process of English loanwords from French with the distinctive features theory proposed by Schane (1973).

### **3. Research Method**

This paper used quantitative and qualitative approaches. The data were taken from two online dictionaries; Larousse Francais-Anglais Dictionary and Oxford Living Dictionary. The data were the English loanwords from French enlisted under categories A and B. In collecting the data, the writer used observation method and note-taking technique. The method used to analyze the data was distributional method. In distributional method, the defining factors are the language itself (Sudaryanto, 2015).

### **4. Results and Discussions**

The total data gathered were 438 words. The data were English loanwords from French enlisted under category A and B in the dictionaries. The loanwords then were classified into 4 phonological processes namely (1) Assimilation, (2) Neutralization, (3) Syllable Structure, and (4) Strengthening and Weakening. The results show that the phonological processes which tend to have the greatest number are Strengthening and Weakening. They cover more than half of the total process. Strengthening covers 26.7% and Weakening covers 43.6%. Therefore, in total, they make up 70.3% of the total process. Meanwhile, Assimilation becomes the least in number covering only 6.6% of all processes. The complete results can be seen in the table 1 below.

**Table 1.** Total Phonological Process

Phonological Processes				
	Assimilation	Neutralization	Syllable Structure	Strengthening & Weakening
Total	29	34	63	308
%	6.6%	7.8%	14.3%	70.3%

From the table, we can find out that Assimilation covers 6.6% with 29 loanwords in total. Neutralization is the process undergone by 34 loanwords. This covers 7.8% of all processes analyzed. Syllable structure with 63 loanwords covers 14.3% of all phonological processes analyzed. Together, Strengthening and Weakening make up 70.3% with 308 English loanwords in total. 43.6% loanwords undergo Weakening and 26.7% undergo Strengthening. This makes Weakening the phonological process most found covering almost half of the total process.

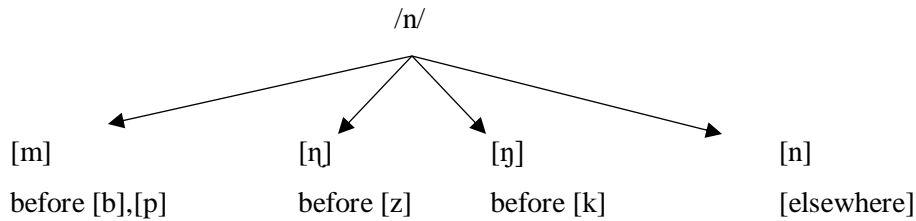
### 3.1 Assimilation

Assimilation covers the least percentage which is 6.6% with 29 loanwords. From the loanwords in this process, it can be seen that the French nasalized vowel [ã] transforms into English vowel [æ] + /n/ when it occurs in the first syllable of the loanword. Vowel [æ] assimilates consonant /n/ so that the vowel is slightly nasalized. The sample can be seen below.

#### Sample 1

[ãtagonism]	→	[æɪn'tægənɪzəm]
[ãtagonist]	→	[æɪn'tægənɪst]
[ãtarktik]	→	[æɪn'tɑ:kɪk]
[ãti ãbr]	→	[ˈæntɪ eɪmbə(r)]
[ãterjær]	→	[æɪn'tɛəriə(r)]
[ãter]	→	[ˈæɪnə(r)]
[ãtiʒen]	→	[ˈæɪntɪʒən]
[ãtipati]	→	[æɪn'tɪpəti]
[ãtikite]	→	[æɪn'tɪkwəti]
[ãtɔnim]	→	[ˈæɪntənɪm]
[bãd]	→	[bænd]
[bãdo]	→	[ˈbændəʊ]
[bãduljær]	→	[ˌbændə'liə(r)]
[bãde]	→	[ˈbæni]
[brãle]	→	[ˈbrænl]

From the sample, it can be seen that the consonant /n/ occurs before [ʃ, dʒ, t, ə, d, ɪ, l]. From there, the writers figure out that there are four different allophones from /n/. They are [m], [n], [ŋ], and [ɲ]. /n/ was chosen as the phoneme since it has the widest distribution. The distribution can be demonstrated as follows.



1. [m] occurs before [b,p]
2. [ŋ] occurs before [z]
3. [ŋ] occurs before [k]
4. [n] occurs before [ʃ, dʒ, t, ə, d, ɪ, l]

From these distribution, there are three rules formulated for the assimilation process. First, the phoneme /n/ transform into [m] when it encounters consonants [b] and [p]. The following is sample of the process.

### Sample 2

[ãbasadær]	→	[æm' bæsedə(r)]
[ãbr]	→	[ 'æmbə]
[ãbjãs]	→	[ 'æmbiəns]
[ãbigʊite]	→	[,æmbɪ' gju:əti]
[ãbiʃjə]	→	[æm' bɪʃəs]
[ãbl]	→	[ 'æmbəl]
[ãbylãs]	→	[ 'æmbjələns]
[ãbyskad]	→	[ 'æmbəs, keɪd]
[ãplɪfje]	→	[ 'æmplɪfaɪ]
[ãpul]	→	[ 'æmpu:l]

The phonological rule on the process of transforming /n/ into [m] when encountering consonants [b] and [p] can be stated as follows:

$$\begin{array}{lcl}
 /n/ & \rightarrow & [m] \quad / \quad \# \_\_\_ [b,p] \\
 \left[ \begin{array}{c} +ant \\ +cor \\ +nas \end{array} \right] & \rightarrow & \left[ \begin{array}{c} +ant \\ -cor \\ +nas \end{array} \right] \quad / \quad \# \_\_\_ \left[ \begin{array}{c} +cons \\ -son \\ +ant \\ -cor \\ -cont \end{array} \right]
 \end{array}$$

Second, the phoneme /n/ transforms into [ŋ] when it occurs before [z]. Under categories A and B in the dictionary, the writers can only find one example of it. The sample is as below.

### Sample 3

[ãksjete]	→	[æŋ' zaiəti]
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The following is the rule for the assimilation process.

$$\begin{array}{lcl} /n/ & \rightarrow & [\eta] \quad / \# \_\_\_ [z] \\ \left[ \begin{array}{l} +ant \\ +cor \\ +nas \end{array} \right] & \rightarrow & \left[ \begin{array}{l} -ant \\ +cor \\ +nas \end{array} \right] \quad / \# \_\_\_ \left[ \begin{array}{l} +cons \\ -son \\ +ant \\ +cor \\ +cont \end{array} \right] \end{array}$$

Third, the phoneme /n/ transforms into [ŋ] when it encounters [k]. Under categories A and B in the dictionary, the writers can find only two examples of the assimilation process. The sample can be seen below.

#### Sample 4

---

[bãk]	→	[bæŋk]
[bãkɛ]	→	[ˈbæŋkwɪt]

---

The rule of the assimilation process can be stated as follows.

$$\begin{array}{lcl} /n/ & \rightarrow & [\eta] \quad / \# \_\_\_ [k] \\ \left[ \begin{array}{l} +ant \\ +cor \\ +nas \end{array} \right] & \rightarrow & \left[ \begin{array}{l} -ant \\ -cor \\ +nas \end{array} \right] \quad / \# \_\_\_ \left[ \begin{array}{l} +cons \\ -son \\ -ant \\ +cor \\ -cont \end{array} \right] \end{array}$$

### 3.2 Neutralization

In this study, neutralization is the process undergone by 34 loanwords or 7.8% of the total process. According to Schane (1973:61) nasalized vowels are neutralized in French. Thus, English loanwords from French with nasalized vowels are considered to undergo neutralization. Therefore, the following sample are categorized as vowel neutralization processes.

#### Sample 5

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[ãsjẽ]	→	[ˈeɪnʃənt]
[ãtesedã]	→	[ˌantriˈsiːdənt]
[bakãt]	→	[ˈbækənt]
[balãse]	→	[ˈbæləns]
[balõ]	→	[bəˈluːn]
[bã]	→	[bəˈnɑːl]
[basẽ]	→	[ˌbæsɪˈnet]
[basõ]	→	[bəˈsuːn]
[batõ]	→	[ˈbætɒn]
[batajõ]	→	[bəˈtæljən]
[bedwẽ]	→	[ˈbeduɪn]
[bãd]	→	[bend]
[blãʃir]	→	[blɑːntʃ]
[blazõ]	→	[ˈbleɪzən]
[blõd]	→	[blɒnd]
[bluzõ]	→	[ˈbluːzən]

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[bœmjẽ]	→	[bəʊ'hi:miən]
[bɔ̃b]	→	[bɒm]
[bɔ̃bard]	→	[ˌbɒmbə'diə]
[bɔ̃bɔ̃]	→	[ˈbɒnbɒn]
[bɔ̃]	→	[ˈbaʊnd]
[bɔ̃te]	→	[ˈbaʊnti]
[burdɔ̃]	→	[ˈbʊədən]
[butɔ̃]	→	[bu:tən]
[brigã]	→	[ˈbrɪgənd]
[brijã]	→	[ˈbrɪliənt]
[brijãtin]	→	[ˈbrɪliənti:n]
[brɔ̃z]	→	[brɒnz]
[brœ]	→	[bru:'nwa:z]
[bufɔ̃]	→	[bə'fu:n]
[ãduj]	→	[ɒ'du:j]

However, the last word in the sample shows that not all French nasalized vowels are neutralized in a sense that French nasalized vowels transform into English oral vowels. In this case, the English loanword still occurs in nasalized vowel but different in rounding.

### 3.3 Syllable Structure

With 63 loanwords, syllable structure covers 14.3% of all processes. In this process, the writers found that there are five kind of it. They are (1) consonant insertion, (2) consonant deletion, (3) vowel insertion, (4) vowel deletion and (5) major class change. The samples can be seen as follows.

#### 3.3.1 Consonant insertion

The sample below shows the insertion of consonant [h] in the English loanwords.

##### Sample 6

[aderãt]	→	[əd'hɪərənt]
[adezjɔ̃]	→	[əd'hi:ʒn]
[adezɪf]	→	[əd'hi:sɪv]

From the sample, the rule of the process of insertion can be stated as follows.

$$\emptyset \rightarrow [h] \quad / \# \$ [d] \_\_\_$$

$$\emptyset \rightarrow \left[ \begin{array}{c} +cons \\ -son \\ -cor \\ -ant \\ +cont \\ -voiced \end{array} \right] \quad / \# \$ \left[ \begin{array}{c} +cons \\ -son \\ +cor \\ +ant \\ -cont \\ +voiced \end{array} \right] \_\_\_$$

The rule states that consonant [h] is inserted when it occurs in the second syllable following consonant [d].

The insertion of [h] may also be influenced by the presence of [+stress] which also causes the reduction of



[a] into [ə] in the initial position. With the insertion of [h], the construction then, become CV. In addition, in English culture, the presence of [h] in pronunciation carries social information regarding social status.

Another consonant insertion process can be seen below.

### Sample 7

[avās]	→	[əd'va:ns]
[avāsmā]	→	[əd'va:nsmənt]
[avātaʒ]	→	[əd'va:ntɪdʒ]
[avātyr]	→	[əd'ventə(r)]
[avātyrje]	→	[əd'ventə(rə(r))]
[avertismā]	→	[əd'vɜ:tɪsmənt]
[avi]	→	[əd'vais]
[avəka]	→	[ˈædvəkət]
[avertir]	→	[ˈædvətɪr]

Ø → [d] / # \_\_\_ \$ [v]

Ø →  $\begin{bmatrix} +cons \\ -son \\ +cor \\ +ant \\ -cont \\ +voiced \end{bmatrix}$  / #  $\begin{bmatrix} +cons \\ -son \\ +cor \\ +ant \\ +cont \\ +voiced \end{bmatrix}$

The rule states that consonant [d] is inserted when it appears in the first syllable followed by consonant [v].

Below is another sample of consonant insertion process.

### Sample 8

[bəs]	→	[bəʊst]
[brʊi]	→	[bru:t]

Ø → [t] /  $\begin{bmatrix} s \\ u: \end{bmatrix}$  \_\_\_ #

Ø →  $\begin{bmatrix} +cons \\ -son \\ +cor \\ +ant \\ -cont \\ -voiced \end{bmatrix}$  /  $\begin{bmatrix} s \\ u: \end{bmatrix}$  \_\_\_ #

The rule above states that consonant [t] is added in the final position of the loanwords after consonant [s] and vowel [u:].

The word [batist] in French changes into [ˈbæptɪst] in English. Phonologically, there occurs consonant insertion process. Consonant [p] is inserted to the English loanword as can be seen in the sample and rule below.

**Sample 9**

[batist]	→	['bæptist]
∅	→	[p] / ____ [t]
∅	→	$\begin{bmatrix} +cons \\ -son \\ -cor \\ +ant \\ -cont \\ -voiced \end{bmatrix} / \text{---} \begin{bmatrix} +cons \\ -son \\ +cor \\ +ant \\ -cont \\ -voiced \end{bmatrix}$

The rule states that consonant [p] is inserted when followed by consonant [t].

The French word [bruaa] also undergo consonant insertion process. Consonant [h] is inserted when followed by [ɑ:] as can be seen in the sample and rule below.

**Sample 10**

[bruaa]	→	['bru:ha:ha:]
∅	→	[h] / ____ [ɑ:] ____ [ɑ:]
∅	→	$\begin{bmatrix} +cons \\ -son \\ -cor \\ -ant \\ +cont \\ -voiced \end{bmatrix} / \text{---} \begin{bmatrix} -high \\ +low \\ +back \\ -round \\ +long \end{bmatrix} \text{---} \begin{bmatrix} -high \\ +low \\ +back \\ -round \\ +long \end{bmatrix}$

The insertion of sound [h] can be brought about by the avoidance of vowel cluster construction. When [h] is inserted, the sound [h] breaks the cluster VV and the construction becomes CVCV which is preferable in English.

The next sample also demonstrates the process of consonant insertion. In the sample, consonant [j] is inserted following consonant [b,t] and before [ʊ, u, u:]. The sample and rule can be seen below.

**Sample 11**

[byr]	→	['bjʊərəʊ]
[byrokrasi]	→	[bjʊə'rɒkrəsi]
[byret]	→	[bjʊ'ret]
[bote]	→	['bjʊ:ti]
[beatityd]	→	[bi'ætɪtjʊ:d]

The rule can be seen as follows.

∅	→	[j] / $\begin{bmatrix} b \\ t \end{bmatrix} \text{---} \begin{bmatrix} \text{ʊ} \\ u \\ u: \end{bmatrix}$
∅	→	$\begin{bmatrix} +cons \\ +son \\ +cor \\ -ant \end{bmatrix} / \begin{bmatrix} b \\ t \end{bmatrix} \text{---} \begin{bmatrix} \text{ʊ} \\ u \\ u: \end{bmatrix}$

### 3.3.2 Consonant deletion

The sample below demonstrate the process of consonant deletion. In this process, consonant [r] is deleted.

#### Sample 12

[arbitre]	→	['ɑ:bitrɑ:ʒ]
[ɑrʃ]	→	[ɑ:tʃ]
[arkaɪk]	→	[ɑ:'keɪk]
[ɑrʃe]	→	['ɑ:tʃə(r)]
[ɑrʃitekt]	→	['ɑ:kitekt]
[ɑrʃiv]	→	['ɑ:kɑɪv]
[ɑrʒə'ti:n]	→	['ɑ:rdʒən,ti:n]
[ɑrg(ʊ)e]	→	['ɑ:gju:]
[ɑrme]	→	[ɑ:m]
[ɑrmwɑr]	→	[ɑ:m'wɑ:]
[ɑrmyr]	→	['ɑ:mə]
[ɑrmyrje]	→	['ɑ:mərə(r)]
[ɑrmwəri]	→	['ɑ:məri]
[ɑrkəbyz]	→	['ɑ:kwibəs]
[ɑrterjəl]	→	[ɑ:'tɪəriəl]
[ɑrteziən]	→	[ɑ:,ti:ziən]
[ɑrtifisjəl]	→	[ɑ:tə'fiʃəl]
[ɑrtijəri]	→	[ɑ:'tɪləri]
[ɑrtist]	→	['ɑ:tɪst]
[bɑr]	→	[bɑ:]
[bɑrb]	→	[bɑ:b]
[bɑrd]	→	[bɑ:d]
[bɔrn]	→	[bɔ:n]

The rule for the deletion of consonant [r] is as follows.

$$[r] \rightarrow \emptyset \quad / \# \begin{bmatrix} \alpha: \\ \text{ɔ:} \end{bmatrix} \text{ —}$$

$$\begin{bmatrix} +cons \\ +son \\ +ant \\ +cor \\ -lat \end{bmatrix} \rightarrow \emptyset \quad / \# \begin{bmatrix} \alpha: \\ \text{ɔ:} \end{bmatrix} \text{ —}$$

The rule can be stated that consonant [r] is deleted when occurs after [ɑ:, ɔ:]. This deletion of [r] is associated with non-rhotic accent. This accent difference is brought about by the Great Vowel Shift.

The next sample shows the deletion of consonant [r] in the final position. The sample and rule is as follows.

#### Sample 13

[ɛr]	→	['eə]
[brʊjər]	→	['braɪə]
[bɑrjər]	→	['bæriə]

$$[r] \rightarrow \emptyset \quad / \text{ — } \#$$

$$\begin{bmatrix} +cons \\ +son \\ +ant \\ +cor \\ -lat \end{bmatrix} \rightarrow \emptyset \quad / \text{ — } \#$$

The rule states that consonant [r] is deleted when it occurs in the final position. This is because in French, the final [r], [l], or nasal are ensured to be properly released. However, in English, a final [r], [l], or nasal may not be released/ pronounced (Price, 2005; 124).

### 3.2.3 Vowel insertion

Below is a sample for vowel insertion process.

#### Sample 14

[balystɹ]	→	['bæləstə(r)]
[batɹi]	→	['bætəɹi]
[bulvɹ]	→	['bu:ləvɑ:d]
[brɪjɛvte]	→	['brevəti]
[bʊfɹi]	→	['bʊtʃəɹi]

From the sample, we can see that vowel [ə] is inserted when there is consonant cluster in the words. Vowel [ə] functions to separate consonant clusters (i.e CC become CV) so that the construction of the words become simpler. The rule for the vowel insertion process can be stated below.

$$\begin{array}{lcl} \emptyset & \rightarrow & [ə] \quad / \text{C} \_\_\_\text{C} \\ \emptyset & \rightarrow & \begin{bmatrix} -high \\ -low \\ +back \\ -round \end{bmatrix} \quad / [+cons] \_\_\_\_ [+cons] \end{array}$$

### 3.2.4 Vowel deletion

The followings is the sample for vowel deletion process.

#### Sample 15

[alterɛ]	→	['ɔ:lɪtə(r)]
[brwaje]	→	[bri'nɪʃ]

It can be seen that in the vowel deletion process, vowel [e] is deleted when it shows in the final position. The rule for this process can be stated as follows.

$$\begin{array}{lcl} [e] & \rightarrow & \emptyset \quad / \_\_\_\# \\ \begin{bmatrix} -high \\ -low \\ -back \\ -round \end{bmatrix} & \rightarrow & \emptyset \quad / \_\_\_\# \end{array}$$

### 3.2.5 Major class change

#### Sample 16

[bafwe]	→	['bæfɪ]
[bedwɛ]	→	['beduɪn]

The sample shows that semivocal [w] changes its major class into consonant [ɪ] and vowel [u]. The rule can be stated as follows.

[w]	→	$\begin{bmatrix} \text{ɪ} \\ \text{u} \end{bmatrix}$	/ # \$ ____
$\begin{bmatrix} -cons \\ -sil \end{bmatrix}$	→	$\begin{bmatrix} \text{ɪ} \\ \text{u} \end{bmatrix}$	/ # \$ ____

The rule states that semivocal [w] transforms into [ɪ] and [u] when occurs in the second syllable. Practically, the sound [w] is closely similar to [u] (Roach, 2009). The transformation of [w] into [ɪ] and [u] is because [ɪ], which is categorized as dark [ɪ], and [u] do not sound very different from one another (Price, 2005: 112). Dark [ɪ] has a quality rather similar to [u], with the back of the tongue raised (Roach, 2009).

### 3.4 Strengthening and Weakening

The explanation of these processes is separated for the sake of clarity. Strengthening will be explained first and weakening will be second. Strengthening is divided into vowel shift and diphthongization. Meanwhile, weakening is divided into vowel reduction and apocope.

#### 3.4.1 Strengthening

Covering 26.7% of the total process, strengthening occurs to 117 words. The sample can be seen below.

##### 3.4.1.1 Vowel shift

The sample below shows the shift of vowel [a] into vowel [æ].

#### Sample 17

[abatr]	→	['æbətwa:(r)]
[abes]	→	['æbes]
[ablatif]	→	['æblətɪv]
[apsɛt]	→	['æbsɪnə]
[akəlit]	→	['ækəlɪt]
[akriməni]	→	['ækriməni]
[akrəbat]	→	['ækkrəbæt]
[amiral]	→	['ædmərəl]
[advərsɛr]	→	['ædvəsəri]
[advɛrs]	→	['ædvɜ:s]
[əgənize]	→	['ægənɪz]
[albɪmɪn]	→	['ælbjəmɪn]
[alkəl]	→	['ælkəhəl]
[alkov]	→	['ælkəʊv]
[alɛgəri]	→	['ælɛgəri]
[altruɪzəm]	→	['æltruɪzəm]
[amarət]	→	['æmərənθ]

[amɪtʃe]	→	[ˈæməti]
[anəgrəm]	→	[ˈænəgræm]
[analize]	→	[ˈænəlaɪz]
[akademik]	→	[ˌækəˈdemɪk]
[akuʃe]	→	[ˌækuˈʃɜ:]
[aktʃʌlɪte]	→	[ˌæktʃuˈæləti]
[admənɪʃjən]	→	[ˌædməˈnɪʃn]
[əleksəˈdrɛ]	→	[ˌælɪgˈzɑːndrɪn]
[animosite]	→	[ˌæniˈmɒsəti]
[əpəˈstɒlɪk]	→	[ˌæpəˈstɒlɪk]
[əpreˈɑːde]	→	[ˌæprɪˈhend]
[əristəˈkrasi]	→	[ˌæriˈstɒkrəsi]
[əristəˈkrætɪk]	→	[ˌæriˈstəˈkrætɪk]
[əvərɪʃjən]	→	[ˌævəˈrɪʃən]
[bəkərə]	→	[ˈbækərə:]
[bagaʒ]	→	[ˈbæɡɪdʒ]
[baləd]	→	[ˈbæləd]
[barək]	→	[ˈbærəks]
[bærɪl]	→	[ˈbærəl]
[bataɪ]	→	[ˈbætəl]

[a] → [æ] / # [+ (secondary) stress] \_\_\_\_ \$

$$\begin{bmatrix} -\text{high} \\ +\text{low} \\ +\text{back} \\ -\text{round} \\ -\text{tense} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{high} \\ +\text{low} \\ +\text{back} \\ -\text{round} \\ +\text{tense} \end{bmatrix} \quad / \# [+ (secondary) stress] \_\_\_\_\_\$$$

The rule can be stated that [a] changes into [æ] when it occurs in the first syllable with [+stress]. The [+stress] can be primary or secondary stress. Both kinds of stress can shift the vowel [a] into [æ] when occurs in the first syllable.

### 3.4.1.2 Diphtongization

Below is the sample that shows the process of diphtongization. In the process, short vowel [a], [ɛ] and [e] change into closing diphtong [eɪ].

#### Sample 18

[abil]	→	[ˈeɪbl]
[amɛr]	→	[eɪm]
[ateɪzəm]	→	[ˈeɪθɪzəm]
[ɛd]	→	[eɪd]
[ɛgrɛt]	→	[ˈeɪgrɪt]
[ɛlɪʃən]	→	[ˈeɪlɪʃən]
[egwɪj]	→	[ˈeɪgwɪ:]
[egwɪjət]	→	[ˌeɪgwɪˈlɛt]
[baɪe]	→	[beɪl]
[balɛn]	→	[ˈbeɪli:n]
[baɪənɛt]	→	[ˈbeɪə(ʊ)nɪt]

The rule for diphthongization process can be stated below.

$$\begin{bmatrix} a \\ \varepsilon \\ e \end{bmatrix} \rightarrow [eɪ] \quad / \quad \# \_\_\_\$$$

The rule states that vowel [a], [ε] and [e] change into diphthong [eɪ] when they occur in the second syllable.

### 3.4.2 Weakening

Covering almost half of the total process, weakening is undergone by 191 loanwords. This means 43.6% of all processes in the study undergo weakening process.

#### 3.4.2.1 Vowel reduction

The sample below shows the process of vowel reduction.

##### Sample 19

[abādɔne]	→	[ə'bændən]
[abəlir]	→	[ə'bəlɪf]
[abōde]	→	[ə'baʊnd]
[əbreʒe]	→	[ə'brɪdʒ]
[akademiʃjẽ]	→	[ə,kædə'mɪʃn]
[akademi]	→	[ə'kædəmi]
[akōpaɳmã]	→	[ə'kʌmpənɪmənt]
[akōpane]	→	[ə'kʌmpəni]
[akōpli]	→	[ə'kʌmplɪf]
[akorde]	→	[ə'kɔ:rd]
[akoste]	→	[ə'kɒst]
[akutre]	→	[ə'ku:tə]
[akredite]	→	[ə'kredit]
[akry]	→	[ə'kru:]
[akyze]	→	[ə'kju:z]
[akrɔstiʃ]	→	[ə'krɒstɪk]
[aʒyste]	→	[ə'dʒʌst]
[afeksjone]	→	[ə'fekʃənət]
[agrādir]	→	[ə'grændərɪz]
[əgrave]	→	[ə'gri:vɪd]
[agree]	→	[ə'gri:]
[əgrɔnəmɪk]	→	[ə'grɒnəmɪks]
[əgrɔnəmi]	→	[ə'grɒnəmi]
[alarm]	→	[ə'la:m]
[alɛrt]	→	[ə'lɜ:t]
[aliɳe]	→	[ə'laɪn]
[əpstənɪr]	→	[əb'steɪn]
[ədversite]	→	[əd'vɜ:səti]
[əksepte]	→	[ək'septəns]
[aktivite]	→	[æk'tɪvəti]

According to Schane (1973), in English, unstressed vowels reduce into schwa. From the sample above, we can see that vowel [a] reduces into [ə] when it occurs without stress in the initial position. The followings is the rule of the vowel reduction process.

[a]	→	[ə]	/ #__ [- stress]
$\begin{bmatrix} -\text{high} \\ +\text{low} \\ +\text{back} \\ -\text{round} \end{bmatrix}$	→	$\begin{bmatrix} -\text{high} \\ -\text{low} \\ +\text{back} \\ -\text{round} \end{bmatrix}$	/ #__ [- stress]

However, referring to the last loanword in the sample, the loanword [æk'tɪvəti] does not follow the rule. In this case, the loanword [æk'tɪvəti] is considered as an exception.

The next sample also shows vowel reduction process.

#### Sample 20

[bakalɒrea]	→	[bækə' lɔ:riət]
[barbarism]	→	[ 'bɑ:bərɪzm]
[barkarəl]	→	[ 'bɑ:kəɪəʊl]
[bavarwa]	→	[ ,bævə' wɑ:]
[bigami]	→	[ 'bɪgəmi]
[bigətri]	→	[ 'bɪgətri]
[bujabəs]	→	[ 'bu:jəbeɪs]
[brigadje]	→	[ ,brɪgə' dɪə]
[byzar]	→	[ 'bʌzəd]

We can see that vowel [a] reduces into schwa [ə] when it occurs in the second syllable without stress. The rule of vowel reduction process can be stated as follows.

[a]	→	[ə]	/ # \$ [- stress] ____
$\begin{bmatrix} -\text{high} \\ +\text{low} \\ +\text{back} \\ -\text{round} \end{bmatrix}$	→	$\begin{bmatrix} -\text{high} \\ -\text{low} \\ +\text{back} \\ -\text{round} \end{bmatrix}$	/ # \$ [- stress] ____

The following sample shows vowel reduction process.

#### Sample 21

[ɒdɪtər]	→	[ 'ɔ:dɪtə(r)]
[ɒgmâte]	→	[ɔ:g' ment]
[ɒgmâtatif]	→	[ ,ɔ:g' mentətɪv]
[ɒgyre]	→	[ 'ɔ:gjəri]
[ɒgyst]	→	[ɔ:' gʌst]
[ɒreəl]	→	[ 'ɔ:ri:əʊl]
[ɒsterite]	→	[ɔ:' sterəti]
[ɒtərɪte]	→	[ɔ:' θɒrəti]
[ɒtəkrat]	→	[ 'ɔ:təkræt]
[ɒtəgraf]	→	[ 'ɔ:təgrɑ:f]
[ɒtəmat]	→	[ 'ɔ:təmət]
[ɒtəmatism]	→	[ɔ:' tɒmətɪzəm]
[ɒtəpsi]	→	[ 'ɔ:təpsi:]

We can see from the sample that [o] reduces into [ɔ:] when occurs in the first syllable. The phonological rule can be stated as below.



[o]	→	[ɔ:]	/ #__ \$
$\begin{bmatrix} -\text{high} \\ +\text{back} \\ +\text{round} \\ +\text{tense} \\ -\text{long} \end{bmatrix}$	→	$\begin{bmatrix} -\text{high} \\ +\text{back} \\ +\text{round} \\ -\text{tense} \\ +\text{long} \end{bmatrix}$	/ #__ \$

### 3.4.2.2 Apocope

The sample below shows the process of Apocope.

#### Sample 22

[abese]	→	[ə'beɪs]
[otɔrize]	→	['ɔ:θəraɪz]
[akutyme]	→	[ə'kʌstəm]
[azurne]	→	[ə'dʒɜ:rn]
[adʒyʒe]	→	[ə'dʒʌdʒ]
[aklimate]	→	['ækləmeɪt]
[admɔneste]	→	[əd'mɒnɪʃ]

From the sample above, it can be seen that [e] is eliminated when it occurs in the final position. The rule can be stated as follows.

[e]	→	Ø	/ ____ #
$\begin{bmatrix} -\text{high} \\ -\text{low} \\ -\text{back} \\ -\text{round} \end{bmatrix}$	→	Ø	/ ____ #

## 5. Conclusion

From the analysis above, it can be concluded that weakening is the phonological process most found in this study. Weakening covers 43.6% of the total process with 191 loanwords. Strengthening occurs in 117 loanwords or 26.7% of the total process. Syllable structure is undergone by 63 loanwords or 14.3% of the total process. Naturalization covers 7.8% with 34 loanwords and Assimilation occurs in 29 loanwords or 6.6% of the total process.

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